



**Supplement to the JOURNAL**

of the **ROYAL ASTRONOMICAL**  
**SOCIETY of CANADA**

**ANNUAL REPORT 1987**

**APRIL 1988**



**PRESIDENTS OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA**

1890–1894	C. Carpmael	1941–1942	F.S. Hogg
1895	L.W. Smith	1943–1944	A.V. Douglas
1896–1897	J.A. Paterson	1945–1946	A.E. Johns
1898–1899	A. Harvey	1947–1948	J.W. Campbell
1900–1902	G.E. Lumsden	1949–1950	A. Thompson
1902–1903	R.F. Stupart	1951–1952	C.S. Beals
1904–1907	C.A. Chant	1953–1954	J.F. Heard
1908–1909	W.B. Musson	1955–1957	R.M. Petrie
1910–1911	A.T. DeLury	1957–1959	H.S. Hogg
1912–1913	L.B. Stewart	1959–1960	A. McKellar
1914–1915	J.S. Plaskett	1960–1962	P.M. Millman
1916–1917	A.D. Watson	1962–1964	R.J. Northcott
1918–1919	A.F. Miller	1964–1966	K.O. Wright
1920–1921	J.R. Collins	1966–1968	M.M. Thomson
1922–1923	W.E.W. Jackson	1968–1970	J.E. Kennedy
1924–1925	R.M. Stewart	1970–1972	H. Simard
1926–1927	A.F. Hunter	1972–1974	J.L. Locke
1928–1929	W.E. Harper	1974–1976	J.D. Fernie
1930–1931	H.R. Kingston	1976–1978	A.H. Batten
1932–1933	R.K. Young	1978–1980	J.R. Percy
1934–1935	L. Gilchrist	1980–1982	I. Halliday
1936–1937	R.E. DeLury	1982–1984	F. Loehde
1938–1939	W. Findlay	1984–1986	R.L. Bishop
1940	J.A. Pearce	1986–	M. Grey

**SECRETARIES OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA**

Corresponding Secretary 1890–1901; Secretary 1902–1919, General Secretary 1920–1040; National Secretary 1950 onwards.

1890–1899	G.E. Lumsden	1935–1958	E.J.A. Kennedy
1900–1902	W.B. Musson	1958–1964	J.E. Kennedy
1902–1917	J.R. Collins	1964–1971	N. Green
1918–1919	W.E.W. Jackson	1971–1974	C.E. Hodgson
1920–1923	A.F. Hunter	1974–1977	D.J. FitzGerald
1924–1927	F.T. Stanford	1978–1980	N. Green
1928–1931	L. Gilchrist	1981–1987	R.P. Broughton
1932–1935	R.A. Gray	1987–	D.A. Tindall

**HONORARY MEMBERS OF  
THE ROYAL ASTRONOMICAL SOCIETY OF CANADA**

Dr. V.A. Ambartsumian (U.S.S.R.)	Dr. W. Iwanowska (Poland)
Dr. R.B. Baldwin (U.S.A.)	Dr. J.H. Oort (Netherlands)
Dr. F.M. Bateson (N.Z.)	Dr. A.R. Sandage (U.S.A.)
Dr. R. Hanbury Brown (Australia)	Dr. Martin Schwarzschild (U.S.A.)
Dr. A. Dollfus (France)	Dr. A. Unsold (Germany)
Dr. Stephen W. Hawking (England)	Prof. H.C. van de Hulst (Netherlands)
Dr. Helen S. Hogg (Canada)	



## REPORT OF THE PRESIDENT

Supernova 1987A assures the year 1987 a place in the annals of astronomy. Pride in Canadian Ian Shelton's discovery of the supernova made at the University of Toronto's observatory at Las Campanas, Chile, is shared by all of us. A total of 29 papers on the supernova were presented at the joint meeting of the Canadian Astronomical Society (C.A.S.C.A.) and the American Astronomical Society in Vancouver in June, less than four months after discovery. At the Supernova Celebration hosted by the University of Toronto, National Secretary Peter Broughton presented a Life Membership in the R.A.S.C. to Ian, a former member of the Winnipeg Centre.

1987 also marked two independent comet discoveries by Kingston Centre member David Levy. Comets Levy 1987a and 1987y bring to three the total of David's comet discoveries. Congratulatory letters were sent on both occasions.

A number of anniversaries significant to the history of astronomy occurred during the year. A photograph of the birthplace of Isaac Newton by Past President and Handbook Editor Dr. Roy Bishop was used on a first day cover for a series of commemorative stamps marking the tercentenary of the publication of Newton's *Principia*. The June 1987 issue of the *Journal* (Vol. 81/3[606]) noted the two-hundredth anniversary of Joseph von Fraunhofer. On Grote Reber's birthday on December 22, 1987, the National Research Council's Herzberg Institute of Astrophysics hosted a colloquium to celebrate several important milestones in astronomy: the 50th anniversary of the construction by Grote Reber of the first modern radio telescope; the 40th anniversary of NRC's radar and photographic meteor observing programme; the 20th anniversary of Canadian scientists as world leaders in developing the first very long baseline interferometry (VLBI) system. The programme, featuring international speakers, was completed by Nobel Prize winner and NRC distinguished research scientist Dr. Gerhard Herzberg's address highlighting 50 years of study of interstellar molecules.

Dismay and grave concern over the virtual closing of one of Canada's major astronomical facilities, the Algonquin Radio Observatory, were balanced somewhat by the announcement of Canada's 25 percent partnership agreement with the United Kingdom, Netherlands and Hawaii in the James Clerk Maxwell Telescope project. Now operational, the 15-m submillimeter-wave antenna is located on Mauna Kea.

Sponsored jointly by the R.A.S.C. and C.A.S.C.A. and alternating between the annual meetings of the two Societies, the 1987 Helen Hogg public lecture was presented at the joint meeting of the Canadian and American Astronomical Societies in Vancouver in June by Dr. René Racine of the University of Montreal. For a short review of his address, "Small is Beautiful: The Quest for High-resolution Imaging in Astronomy," see the October 1987 *Journal*, page 163.

We were saddened to learn of the loss of three Honorary Members of the Society, Sir Richard Woolley (South Africa) and Professor Bengt Strömberg (Denmark), and Dr. Leo Goldberg (USA). During the year, we welcomed two distinguished astronomers who honoured the Society by accepting Honorary Memberships: Dr. Robert Hanbury Brown (Australia) and Dr. Helen Sawyer Hogg (Canada).

Due largely to the efforts of the Computer Use Committee chaired by Mr. Franklin Loehde and ably assisted by Mr. Peter Broughton and Mr. Brian Beattie, the National Office has now joined the computer age. Through NetNorth all Centres can now be linked with National Office.

Always a time to renew friendships and compare notes with old and new acquaintances from distant Centres, the 1987 General Assembly was magnificently hosted by the Toronto Centre. A fine balance was achieved between the papers sessions which continue to attain a high level of excellence, Centre displays, traditional GA activities such as song and slide contests, and the social events in lovely Toronto settings. The banquet was the occasion for the presentation of major Society awards: the Service Award to Mr. R. Peter Broughton and Mr. Cyril Clark, both Toronto Centre members; the Chant Medal to M. Damien Lemay of the Centre de Québec, and the Simon Newcomb Award to Mr. Peter Jedicke of the London Centre. Citations were printed in the October 1987 *Journal* Vol. 81/5[608] and Peter Jedicke's article appeared in the December 1987 *Journal* Vol. 81/6[609].

During my term as President it has been my great pleasure to visit more than half of the Centres of the Society. Travelling from coast to coast it has been enlightening to experience the differences in focus of Centres separated by large geographical distances yet united by a love of astronomy. I thank each of the Centres for the warmth of their hospitality and urge that all opportunities be exploited to further

unite the Society: apply for speaker exchange grants, take advantage of funding subsidies to send Centre representatives to meetings of National Council, and use the computer network to communicate with National Office. To be appreciated, your voice must be heard.

In an effort to decentralize the locale during a year when the Annual Meeting was held in Toronto, the September meeting of National Council was held in Halifax. In June 1988, the spring meeting will be held in Victoria. It is my wish that in future more national meetings can be held outside the region of the National Office.

It would not have been possible to carry out my presidential duties without the patience and tireless efforts of the Executive-Secretary. To Rosemary Freeman I extend a sincere thank-you. An expression of gratitude is also extended to all officers of the Society, its three editors, committee members and Centre representatives without whose advice and help our Society could not function. I have been greatly honoured to serve as President of the Royal Astronomical Society of Canada.

MARY GREY *President*

## REPORT OF THE NATIONAL SECRETARY

It seems hard to believe that almost a year has passed since I had a phone call from the nominating committee. At that time I had only an inkling of what to expect as National Secretary. However, thanks to the efficiency of our Executive Secretary, Rosemary Freeman, and to a speedy but thorough briefing from outgoing National Secretary, Peter Broughton, I soon felt very much at home. This was particularly reinforced by words of encouragement and expressions of support from many members at the time of the very successful General Assembly in Toronto.

The September National Council meeting was hosted in Halifax by my home Centre. Such "non-G.A." Council meetings held occasionally outside the Toronto area help to reinforce the idea that we have a National Society, and the attendance in Halifax was pleasingly high. A noteworthy development for the Society was authorised at that meeting: National Office now has a connection (RASCUTORPHYS) to the NetNorth (BitNet) computer network. All Centres should have received information on how to connect into NetNorth and I encourage you to take steps to ensure that your Centre establishes a connection as quickly as possible. I think it will be another step in bringing the far-flung corners of our country together and reduce the inevitable tensions which arise, from time to time, between National Office and the Centres.

In spite of the recession of Comet Halley into the depths of the Solar System, the peak in membership recorded last year has only slightly diminished. Most of this is due, I am sure, to the vigour of the individual Centres of the Society and their annual reports in the pages which follow reflect this. The membership figures as of September 30, 1987 are compared with those of the previous year in the following summary (the total reported in 1985 was 2914):

	1986	1987
Calgary	240	242
Edmonton	117	115
Halifax	121	145
Hamilton	79	84
Kingston	44	46
Kit-Waterloo	19	29
London	46	46
Centre Français de Montréal	44	39
Montreal	118	111
Niagara	54	48
Ottawa	276	241
Quebec	75	74
St. John's	18	22
Sarnia	19	11
Saskatoon	48	41
Toronto	1123	1035
Vancouver	116	147
Victoria	146	143
Windsor	52	48
Winnipeg	69	61
Unattached to Centres		
Canada	298	318
United States	371	369
Overseas	57	57
Honorary	14	13
	<hr/> 3564	<hr/> 3534

Careful readers of the first page of the Annual Report will have noted a number of changes to the honorary members list. I regret to report that, since the last Annual Report, three of our honorary members have died: Dr. Leo Goldberg, Prof. Bengt Strömgren and Dr. R. v. d. R. Woolley. On a happier note, thanks to the efforts of our honorary members committee, we now have some distinguished names added to the list: Dr. R. Hanbury Brown, Dr. Helen Sawyer Hogg and, most recently, Grote Reber. On behalf of the Officers and Centres of the Society, I should like to record my gratitude to all those hard-working members of committees who work behind the scenes to help make the Society function. Of course, our Executive Secretary, Rosemary Freeman, deserves our thanks for continuing to keep the Society running so smoothly. If you have suggestions for improvements in the way that I carry out my tasks, I should like to hear from you.

DAVID A. TINDALL, *National Secretary*

## CALGARY CENTRE

The discovery of supernova SN1987A heralded the beginning of another exciting year for the Calgary Centre. Maintaining membership at over 200, the Centre has tried to involve new members, generate active observing, and foster a sociable atmosphere.

Mindful of how fortunate the Centre is in its facility at the Wilson Coulee Observatory, members have continued to conduct tours of the site for interested parties. After nearly five years, the site has required extensive maintenance this summer, which has only been possible due to the generous efforts of volunteers.

Continuing the Centre's involvement with the community, several star parties have been held within the city, and have helped bring astronomy to hundreds of people. International Astronomy Day, held in conjunction with the Calgary Centennial Planetarium, was especially well attended. The Centre is beginning a crusade against light pollution generated by city lights, and is trying to persuade planners to incorporate anti-pollution measures into a proposed extension to a nearby town.

The highlight of the year was the Centre's involvement in the First Alberta Star Party held at Chain Lakes in southern Alberta. Over 140 people attended the event, enjoying talks by A. Dyer, J. Himer, P. Ceravolo, and S. Hum, two nights of clear, dark skies, and braving a fierce hail storm which damaged several vehicles. It was an exceptionally successful social, as well as astronomical, event drawing together a good mix of beginners and seasoned observers. The Star Party was commemorated by the sale of a fund-raising T-shirt, with a logo designed by one of our members.

In recognition of the work and involvement of certain members in the running of the Centre, a number of awards have been introduced this year, and will be presented at the Annual Banquet on January 16th., 1988. Also, for the first time, commemorative plaques have been presented to General Meeting Speakers.

The Centre continues to provide an interesting and varied programme of astronomical and social events for members, and will strive in 1988 to accommodate the wishes of the many new members to produce full involvement in the Society.

Together with the monthly Observers' Group meetings, the Centre's programme was as follows:

January	A.G.M. and members' talks.
February	Dr. A. Clark; "Halos and Rainbows".
March	Dr. J. Lutz; "Voyager Flyby of Uranus, and Comet Halley".
April	Star Party at Andrew Sibbald School.
April	Open house at Wilson Coulee Observatory.
May	International Astronomy Day and star party.
May	Dr. W. Wilson; "Some puzzles in the lives of stars".
June	Joint meeting at the Calgary Centennial Planetarium. "Beyond the Fourth Dimension" star show.



July	Annual camp-out at Bragg Creek.
July	First Alberta Star Party at Chain Lakes.
August	Annual Barbeque at W.C.O.
September	Dr. J. Svilpis; "Science Fiction and Science in the Twentieth Century".
October	Mrs. M. Grey; "History of the Dominion Astrophysical Observatory".
November	New members' wine and cheese party at W.C.O.
November	P. Ceravolo; "Telescopes and Optics – a primer".
November	Star Party at Glenmore Park.

DR. L. MARTIN, *Secretary*

## EDMONTON CENTRE

1987 was again an active and successful year, under the direction of our Centre's new president Peter Ceravolo.

At the Annual Meeting held on January 18th a new slate of officers for the coming year was approved. At this meeting, President Bob Carson presented the Annual Awards: the President's Award went to Yni Ebbers, for her long record of faithful service as the Centre's Secretary, the Telescope Making award was presented to George Moores, and the Astrophotography Award was presented to Alan Dyer.

Our Centre celebrated the arrival of its replacement 17 1/2" mirror in April. Late in the year, work began on a new, more portable telescope to use this mirror, with the existing telescope also modified for somewhat improved portability at the same time as an interim measure.

On October 2nd and 3rd, Star Night '87 was held on the Coronation Park grounds; several Centre members assisted Space Sciences Centre staff in manning the telescopes. In addition, several Centre members assisted at a two-night casino which raised approximately \$45,000 for the Edmonton Space Sciences Centre.

John Savard, who assisted Craig Makarowski in producing the Centre's newsletter in the last two months of 1986, became STARDUST editor at the annual meeting, but resigned to take up the duties of Centre Secretary in November due to the departure of the Centre's secretary. Alister Ling, a new member from Calgary, took up the post of STARDUST editor at that time.

Joan Hube, the Centre's new librarian, supervised the installation of a third bookcase to house the Centre's growing library. As well, she has improved the organization of its contents, and presided over further additions to the library.

In addition to council meetings held during this civil year, our Centre has held ten regular meetings which were held in the classroom of the Edmonton Space Sciences Centre (except where otherwise noted). Speakers not otherwise identified are Edmonton Centre members. The speakers and the topics presented were as follows:

January	Michael Watson (Toronto Centre) gave his presentation "South of Capricorn", a multi-media presentation on the skies from the Southern Hemisphere in the Space Sciences Centre Boardroom.
February	Barry Arnold (Arnold Optics and Manufacturing) gave a presentation on optical manufacturing techniques, including a reference to a project he worked on for the Canada-France-Hawaii telescope.
March	Dr. Dorian Smith (University of Alberta) presented "Hoards of Meteorites", about recent discoveries of large quantities of meteorites preserved in Arctic and Antarctic ice.
April	1. Russ Sampson presented slides of his visit to the Lowell Observatory. 2. Dave Parker and Al Mumby described recent telescope projects they had completed.
May	Simon Hum (Quasar Optics, Calgary) discussed astrophotographic filters and film development techniques.

- June Dr. Gordon Rostocker of the University of Alberta presented "Fire in the Sky", about the Aurora in general and the Viking satellite.
- September Alan Dyer (Space Sciences Centre) discussed several major starfests of the past summer, showing slides of his visit to Riverside.
- October National President Mary Grey gave a talk entitled "The History of the Dominion Observatory" illustrated by many slides and a short film.
- November 1. Franklin Loehde – "Planetary Observing"  
2. Russ Sampson – "Astronomy with Binoculars"
- December 1. Peter Ceravolo – "All About Telescopes"  
2. Bryce Heartwell – "The Construction of a 14 1/4" f/4 Telescope"  
3. Alister Ling – "Filters for Deep Sky Observing"

Once again, our Centre expresses its appreciation to its social convener, Audrey Loehde, for providing refreshments to the members upon the adjournment of our meetings.

The Edmonton Centre finished 1987 with a total of 115 paid-up members.

JOHN SAVARD, *Secretary*

## HALIFAX CENTRE

The year of 1987 saw the Halifax Centre continue to grow both in the number of members and in the percentage of members who actively support the Centre. The expected drop in membership after the banner "Halley Year" failed to materialize; indeed, membership is up again. The growth in the active observing group seems to have levelled off somewhat with about a dozen keeners out almost every suitable night (not as impressive as it sounds; this is Halifax we're talking about!) and another two dozen active observers scattered around the Maritimes. During the course of the year, seven of our members received Messier Certificates. Like other centres, our available equipment list is becoming more impressive, with many members discovering the benefits of large aperture telescopes, including Dr. Bill Thurlow's 17.5" eye. The topic of a permanent observatory is starting to crop up in conversations and an observatory committee is awaiting the results of a survey to begin planning a course of action.

We continue to enjoy one of the finest newsletters in the country, "Nova Notes", as a result of Mr Pat Kelly's blood (staples can be sharp!), sweat and tears. For his efforts, Pat was awarded a special "Certificate of Appreciation".

Handbook sales continue to be a strong point for our Centre, a result of actively pursuing such sales as well as the continuing high quality of the publication, which practically sells itself.

The Centre continues to enjoy a close working relationship with the Nova Scotia Museum, which supports us with provision of a meeting place, assistance in newsletter publication, and a central mail-handling/message-taking facility. We reciprocate by supplying lecturers for the Planetarium and giving courses and general assistance for the education department of the Museum. The Halifax Planetarium continues to provide informal talks and shows to the public. What it lacks in equipment (the projector is an antique "Spitz Model A") it makes up in personal contact and the enthusiasm of the lecturers, as evidenced by the steady attendance, even with its "out of the way" location and meager publicity.

Our Centre continues to share events and information with the active Saint John Astronomical Club (N.B.), many members of which are also members of our Centre. We hope that they continue their good work and wish them the best in their attempts to form a centre of their own. In June the Centre also got together with people from the Summerside Astronomy Club (P.E.I.) and the Maple Grove Astronomy Club from Yarmouth County (N.S.) to give them a short seminar on astronomy and our activities. The Summerside group is of particular interest because they have about 40 members, as well as an observatory, a newsletter and a meeting place! They are not directly involved with the R.A.S.C. but it sounds like a potential centre.

This year's meetings were well organized (thanks to our outgoing president, Kathy Oakley) with many excellent talks and special events. The members would seem to agree, since average attendance was about 70 (about 45% of our total membership), in spite of the large geographical area our Centre is responsible for. We continue to show astronomy related videos at most meetings to entertain those members who would rather not sit through the less exciting (but just as entertaining!) executive meetings.

- January "Time" by Dr. Dale Ellis
- February "Visible Constellations" by Glenn Roberts (Observing Chairman)
- March "Recent Developments in Astronomy" by Pat Kelly followed by our first "Equinox Celebration", with lots of games and good food, including "Betelgeuse Punch".
- April "Weather versus Astronomy" by Bill Appleby, meteorologist
- May Our Annual Banquet at "Mother Tucker's" was well attended.
- June "Member's Night" – always a favourite, with a trivia contest, door prizes and more!
- July/August "Nova East '87" – the Camping/Observing Weekend had a very good turnout, excellent facilities and central location at Fundy National Park, which is under consideration as a permanent site
- September "G.A. Report" by Dr. Norman Scrimger (National Rep.), "Nova East '87" by Mary Lou Whitehorne (Observing Chairman) and "Supernovae" by Doug Pitcairn (Secretary)  
Later in September we hosted the National Council meeting followed by a special meeting of the Centre featuring:  
"Aperture Synthesis Radio Telescopes" by Dr. Lloyd Higgs (National First Vice-President), "South of Capricorn" by Michael Watson (Toronto Centre) and "The 1989 G.A." by Capt. Raymond Auclair (Coast Guard College)
- October Our Astronomy Day:  
"Principia" by Dr. Roy Bishop (National Past-President) and  
"Modern Astronomical Detectors" by Mary Lou Whitehorne.  
Two hundred people turned out for the meeting, and afterward, a viewing session was held in the parking lot.
- November "The Origin of the Moon" by Dr. Larry Bogan
- December "The Star of Bethlehem" by Dr. David Turner (Saint Mary's Univ.)

[One should not close this report without mentioning that the Centre Secretary now writes a weekly column, "Sky Scan", for the Halifax Chronicle-Herald. This is a welcome addition to the paper and Doug is to be congratulated on the excellent job he is doing in bringing astronomy to the public.

(editorial comment)]

Douglas Pitcairn, *Secretary*

## HAMILTON CENTRE

A year of team-work, enthusiasm and continued commitment describes the Centre throughout 1987. There were ten general meetings held at McMaster University. The speakers (from the Hamilton Centre, except as noted) and their topics were:

- January Annual Meeting.
- February Ian Stuart, "Saturn's Rings".
- March Dr. Dennis Weaver, "The Raising of the Scourge".
- April Terry Dwyer (Mount Hamilton Weather Office) "Local Weather Patterns".
- May Dr. Chris Hale (McMaster University,) "Earth's Magnetic Field".
- June Ian McGregor (Toronto Centre,) "Origins of Mythology Surrounding the Constellations".
- September Lorison Durocher (Windsor Centre,) "The Solar System", and "The Windsor Centre Observing Site".

- October Mike Jefferson, "Light Pollution", Bert Rhebergen, "Locating Venus in Daylight", Jim Winger, "Features of Venus", Mike DeVillaer, "Astrophotos Part-1", John Hudak, "Reciprocity Failure".
- November Rev. Norman Green, "The Five Ages of Astronomy".
- December Mike DeVillaer, "Astrophotos Part-2", Eric Golding, "Royal Greenwich Observatory and Herstmonceux".

The official opening and dedication of the Leslie V. Powis Hamilton Centre Observatory crowned the activities of the Centre this year. Several Past-Presidents of the Centre were among the honoured guests at this special event, which was held in conjunction with Astronomy Day. A new sign now proudly decorates the Marsh Building to greet visitors to the facilities.

McMaster University has donated a 5" brass antique refractor for the use of the Centre's members. It has been cleaned and mounted in the Chilton Building by our gifted curator, Barry Sherman, and now delivers spectacular planetary views.

The Marsh Building and observatory site have again had improvements carried out by Barry Sherman, Eric Golding, Brian Carr, Sohail Umar-Khitab, Mike Jefferson and many others, with re-construction of dome-shutters and expansion to the parking lot being the primary objectives.

The Public Education programme hosted nearly fifty sessions this year. A combination of twice-monthly Public Nights and Special Groups held at the observatory expanded public awareness, thanks to the co-ordinated efforts of Neil Rogers, Grant Dixon, Ian Stuart, John Gauvreau and Stan Bryant. In addition, Ian and John gave a presentation to seventy young campers at Lowville Park in August, and a successful Mall Display organised by Ian, Bob Speck, Bert Rhebergen and Pauline Wright was held at Burlington Mall on Oct. 10th.

A successful membership-drive, spear-headed by Toni Quinn, was responsible for rekindling interest in many past-members. The phone committee also organised by Toni was instrumental in increasing attendance of monthly meetings.

The Beginners' Group was once again conducted by Bob Speck and Jim Winger. This successful programme introduces observational techniques to members new and old, who wish to sharpen their skills. Several members' observing nights were held under the direction of Barry Sherman. Naturally, the observatory's facilities were well used on many additional clear nights throughout the year.

Observing programmes were again being pursued this year. The Jupiter Programme previously initiated by Derek Baker was aptly guided during the year by Richard Petrone. Many of the striking strip-charts obtained by the team of eleven observers were published in ORBIT.

Solar observations are also regaining interest. Bert Rhebergen has acquired significant data since before 'minimum', and the team of Bruce Collier, Keith Wilson, Richard Petrone and Sean Carey have recorded continuous daily observations.

Substantial donations were made to the library's burgeoning collection, and Librarian Ian Stuart couldn't be more pleased, ... unless the results achieved from his polite but firm 'Light Pollution' presentation to Flamborough Council happily turn out to be the results sought after.

An autumn garage sale organised by the hard-working team of Toni Quinn, Pauline Wright, Karyn Bennett and Ian Stuart, added welcome funds to the Centre's treasury.

Congratulations are in order for Mike Jefferson and Mike DeVillaer for their recognition at the G.A., and to Robin Allen and Mike Jefferson for their talk given at Star-Fest.

'ORBIT', now concluding its twentieth year of publication, has been ably edited by Karyn Bennett. Karyn and her team of volunteers, Cathy Cresswell, Clive Gibbons, Ian Stuart, Eric Orr and John Gauvreau successfully produced and distributed ten excellent issues this year. That's over 200 pages of articles reflecting the interest and involvement of Hamilton Centre members!

## KINGSTON CENTRE

In the beginning David Levy discovered Comet Levy 1987a, a natural consequence of perseverance. David, our "satellite" member in Tucson, discovered in October another small "celestial fire", Comet Levy 1987y. Our congratulations to David for the unearthing of two comets in one year.

As newsletter editor of REGULUS, Leo Enright experienced a boost in membership participation in contribution of articles. Observing reports were submitted by the newly formed Observing Committee. Activity reports and articles relating to telescope-making provided a variety of topics to enhance astronomical interest. Leo continues to produce a publication of high quality and it is not unusual to find reprints or quotes taken from REGULUS in other astronomically-related publications. Hein Van Asperen wrote an article which was published in the August issue of the National Newsletter.

David Stokes received mention in the March issue of *Scientific American* as a result of his articles describing a digital Moslem prayer clock. David was also invited to Washington, D.C. to a conference of international experts on lunar calendars and early sightings of the new moon.

The recipient of the Dr. A.V. Douglas Award for 1987 is Hein Van Asperen. Congratulations Hein!

At our regular meetings members reported the usual observations of sunspots, planetary phenomena, fireballs and deep sky objects. Highlights include Leo and Hein reporting their daily recording of sunspot numbers. Hein recorded observing sunspots for over 32 consecutive days. Martyn McConnell reported completing his Messier Objects list. Larry Manuel tested and perfected his handmade three inch doublet refractor. Roy Sutton demonstrated his computer program for satellite identification and location.

This year the Kingston Centre tried several new ideas: we decided to meet every second Friday of the month with an average of fifteen people attending; we enjoyed a members night with everyone bringing their favourite astronomy books and we had our first annual picnic at Grass Creek Park, near Kingston.

Five members attended the Toronto General Assembly.

As is our usual custom Kingston Centre planned activities for International Astronomy Day. Volunteers set up displays at a local shopping mall and we held a public star night in spite of the inclement weather.

Warren Morrison gave us a review of the final resolution of Comet Halley with his own personal last sighting on February 24th.

Various members of our Centre took part in our evening presentations, as follows:

LEO ENRIGHT: Toronto G.A. Travelogue 1987; Stellafane 1987; Syracuse Summer Seminar 1987; Slides of Sunspots, Moonshots and the Milky Way.

RUTH HICKS: Toronto G.A. 1987 Report.

TERRY D. HICKS: Gregorian Calendar.

DAVID STOKES: Journey into Darkness – The Eclipse of 1973 off the Coast of Africa.

HEIN VAN ASPEREN: Toronto G.A. and National Representative Report.

DONNA WHITTAKER: Astronomy at Queen's University.

### *Special Guest Speakers:*

MARY GREY: "History of the Dominion Observatory".

DAVID LEVY: "My Observing Program".

WARREN MORRISON: "Observing Variable Stars".

LUC SIMARD: "Radio Astronomy for Amateurs". (Quebec Centre)

ROY SUTTON: "Satellite and Digital Planetarium".

DR. GUNTER WESSEL: "Evolution of Stars".

SUE KNIGHT SORENSEN, *Secretary*

## KITCHENER-WATERLOO CENTRE

1987 was a year of increased activity for the Kitchener-Waterloo Centre.

In June, the Centre hosted two star nights at the observatory near Ayr. School groups from Guelph were treated to views of the moon and planets through the 12.5" reflector. Later in the month, Centre members travelled to Guelph Lake to hold a star night for the general public.

In August, several members made the annual pilgrimage to Mount Forest for Starfest '87.

Paul Bigelow, a Centre Vice-President, finally found some clear skies in September to host two star parties for the Kitchener-Waterloo Field Naturalists. Paul had attempted to hold a star night for the group on two earlier occasions in March. In both instances, however, the weatherman had ordered clouds.

Two events in November completed the Centre's schedule of star nights in 1987. President Ray Koenig gave introductory astronomy talks at conservation areas in Brantford and Woodstock.

Observing sessions planned for after these talks were both clouded out.

The Centre held its annual picnic at Ayr on June 20. Hazy skies meant that only five members attended. The night will long be remembered, however, for the sighting of a -8 magnitude fireball. On December 12, the group had its annual Christmas dinner at a local Swiss Chalet. This was followed by a gathering at Ray Koenig's house to view some astronomy videos.

The Centre has planned to upgrade the observatory facilities at Ayr in 1988. Paul Bigelow and Larry Mitchell are currently studying the addition of a computer-assisted drive to the 12.5" reflector. The group may also have the secondary mirror realuminized.

The following is a summary of the Centre's meetings throughout 1987. Meetings are held the second Tuesday of every month at the Wilfrid Laurier University Arts Building in Room 2C8, with 2C6 and 2C7 as alternates.

Best observing in the year ahead!

January	Annual Election, "Orion", by Peter Daniel
February	<i>NOVA</i> Video: "The Planet That Got Knocked On Its Side"
March	"Astrophotography for Beginners", Bernd Mueller
April	"Beginner's Use of a Telescope", Ray Koenig
May	<i>NOVA</i> Video: "The Rocky Road to Jupiter"
June	Tape Recording: Robert Garrison at G.A. '87
July/August	Summer Break
September	"Our Star the Sun", George Mudry
October	"The Eye and Observing", Dr. Ralph Chou
November	"Cosmology", Ray Koenig
December	"Amateur Telescope Making", Jeff Brunton

JONATHAN DOUPE, *Secretary*

## LONDON CENTRE

The London Centre held eleven regular meetings at the University of Western Ontario during 1987. The speakers (from the London Centre unless noted otherwise) were as follows:

January	Mike Scott, gave an update about Uranus
February	Peter Jedicke, spoke on the possible building of a Canadian neutrino detector
March	The 'IRAS' satellite - video
April	Jaymie Matthews, (U.W.O.) spoke about Supernova 1987a
May	Members' night
June	Richard Cote, spoke on an idea for a London Centre observatory, also an astrophoto slide show was given



- July Discussion on future plans for a centre observatory and the Centre's long range plans overall
- August No official meeting
- September Mike Scott, compared the planets Earth and Venus
- October Dr. W. Wehlau, (U.W.O.) spoke on his studies of Ap stars and of his experiences of international astronomy
- November A video of Sir Isaac Newton was viewed and there was a demonstration by Dan Tremblay, of his sketches of deep-sky objects
- December Elections were held, candid photos of Centre members were shown and an open discussion was held

The attendance at regular meetings was above average for 1987 and there was much enthusiasm in the Observers Group. The members had two camping weekends at Mount Forest and many showed up at Starfest at the same location.

Members were present at the opening of the London Regional Children's Museum Planetarium.

A Merit Award was given to James Lucyk for his publication of "A Cross Reference Index of Deep-Sky Objects".

Our Newsletter recorded 172 pages for vol. 19.

G. CARSCALLEN, *Secretary*

## CENTRE FRANÇAIS DE MONTRÉAL

Comme par le passé les quelques 40 membres du Centre Français de la SRAC affiliés à la SAM ont pu participer aux activités et bénéficier des services offerts par la SAM.

### *Causeries et conférences*

Chaque mardi, à nos locaux du 7110 8e Ave, ont lieu des conférences (1er mardi du mois) et causeries ouvertes au public. Les conférences, données par des professionnels de l'astronomie, nous informent des nouveaux développements et découvertes scientifiques. Les causeries quant à elles, permettent un excellent échange entre amateurs.

### *Observatoire*

A St-Valérien les travaux vont bon train et les observateurs sont de plus en plus nombreux. Une structure d'observation populaire mise sur pied par notre bibliothécaire fonctionne déjà.

### *CAFTA*

Le Concours Annuel des Fabricants de Télescope Amateur s'est tenu à Lanoraie les 21 et 22 août dernier. Le beau temps étant de la partie, les participants ont pu faire de l'observation. En plus des travaux et télescopes inscrits au concours, deux instruments ont attiré l'attention: un Celestron 14 et un Odyssey 13.1". Félicitation aux lauréats du concours: Pierre-André Guibord (optique), Yvan Prégent (mécanique), Manon Décary (photographie), Jean-Guy Taillon et Pédro Borguez (originalité).

### *Exposition*

Mme H. Palardy, notre vice-présidente et responsable des expositions, nous a représenté à l'Expo-Science Internationale avec son kiosque regroupant divers travaux d'amateurs.

### *Représentation*

M. Jean-Pierre Urbain notre délégué a assisté au conseil national de janvier 1987.

DIANE CARPENTIER, *Secrétaire*

## MONTREAL CENTRE

1987 was an interesting and productive year for the Montreal Centre. Although it was somewhat quiet from the point of view of observing, several of our members took advantage of our observing facilities at Cedar Crest, located in the country about 70 miles from Montreal. Our "lone wolves" too were active, including Dr. George Fortier, who regularly carries on photoelectric observations of variable stars for the use of certain professional astronomers. Our Past President, Mr. Mario Caluori, suggested that members be encouraged to make observations of Jupiter while at its closest approach to earth since 1975. This inspired the President, Mr. Ron Pow, to organize a photo contest, the results of which are now awaited.

A major event in the past year was the naming of our observatory "The Isabel K. Williamson Observatory" in Miss Williamson's honour. This was the result of a proposal first made by David Levy two years previously. The ceremony took place on August 29, and was attended by our National President, Mrs. Mary Grey, who unveiled the plaque naming the observatory.

Another event of great interest which took place on the same evening was the presentation of the Charles Good Award for "INTEGRITY" to Mr. Bob Venor, in recognition of 50 years of service to the Montreal Centre, in many capacities. Mr. Venor is currently serving as our auditor, a position he has held for the past several years. Following an address by Miss Williamson, the medal was presented to Mr. Venor by Mrs. Charles Good.

Throughout the past year talks by visiting astronomers were given at the Dow Planetarium. All the arrangements for these were made by Mr. Jimmy Letourneau, our Vice-President and Director of Publicity. Talks given during the 1986/87 season were:

- October "The Spectacular Star Eta Carina" by Dr. Anthony Moffat, professor of astrophysics at the Université de Montréal.
- November Dr. John Glaspey, Physics Department, U of M, spoke on "High Resolution Spectroscopy".
- December "The Sun" by Dr. Gilles Beaudet, Director of the Astrophysics Department, U of M.
- February "Quasars – Interacting Galaxies" by Professor Howard Yee, University Research Fellow U of M Astrophysics Department.
- March "The History of the Dominion Observatory" by Mrs. Mary Grey, our National President.

The final lecture of the season was given by Miss Carmelle Robert, a post-graduate student in astrophysics at the U of M. Her subject was "The Wolf-Rayet Star".

Saturday Night Talks at our observatory were organized by Mr. Dennis Ryan, editor of our newsletter "SKYWARD". These informal talks, about twenty in all, were given mostly by members of our Centre and once again this proved to be a very popular program.

We are deeply indebted to two professional astronomers, Dr. Anthony Moffat and Dr. John Glaspey, who have given enormous support to our Centre both by writing articles for our newsletter and giving talks at the Dow Planetarium and at our observatory.

On October 28, 1987 the Townsend Lecture, co-sponsored by our Centre and McGill University, was given in the Stephen Leacock Building of McGill University. The speaker was Dr. Hubert Reeves, Director of Research at the National Centre for Scientific Research, Paris, and Scientific Counsellor at the Atomic Energy Commission at Saclay, France. Dr. Reeves' lecture was on "The Beginning of the Universe" and the interest it generated was evident from the prolonged question period which followed.

Several of our members attended the General Assembly held in Toronto in 1987. A paper on "Explaining the equation of time" was presented by our Treasurer, Mr. Stewart Marshall.

Stellafane, the annual gathering of amateur telescope makers held during the summer at Springfield, Vermont, was attended in summer '87 by several Montreal Centre members.

Sales of "Joy of Gazing" are continuing at a steady pace, some 50 copies having been sold during the year.

Members of our Centre were saddened by the death in March 1987 by Miss Grace Hill, a long-time,



active member of the Montreal Centre, and also by the tragic death of Mr. Enrico Kindl, a former member and officer of the Montreal Centre, in a mountaineering accident on Mount Robson.

The Annual Meeting of the Montreal Centre was held on November 21, 1987, at which a new Board was elected for the year 1988. Mr. Stewart Marshall reported to the meeting that during 1987 21 persons had been accepted for membership in the Montreal Centre.

The year 1987 ended with the annual Christmas Party held at our observatory. It was a most successful affair, in spite of having been organized on short notice. Mr. Bill Strople was once again the prime mover and once again we say "Thank you, Bill!"

ELIZABETH R. PRIDE, *Secretary*

## NIAGARA CENTRE

All regular meetings are held on the fourth Thursday of the month in the LaMarsh Room of the Niagara Falls Centennial Library, at 7:30 P.M.

- January Annual Meeting, reports of officers, election of Directors and National Council representative. Speakers: Jim Winger and Grant Dixon (Hamilton), on: "Building the Hamilton Centre Observatory"
- February "Focus on Eyepieces" by Marvin Scott and Bob Winder.
- March Norman Green on: "the five Ages of Astronomy", followed by a demonstration of digitized images of the moon, by John Dekker
- April Mike Devallier (Buffalo): "Photography in Astronomy"
- May Members' Night; Marvin Scott showed "Sky", a movie with musical accompaniment, and John Dekker showed his slides from the 1987 General Assembly.
- September Raymond Rusk (Toronto) on: Radio Astronomy with the Very Large Array.
- October Dan Marcus (Buffalo) on: "Astrophotography in Australia".
- November Building Committee Report.

Our Spring Banquet was held on April 3, with Ian McGregor as Guest Speaker. His topic: "Origins of the Constellations – a detective story". The Niagara Centre/NFCAAA Fall Banquet was held on Nov. 7; the Guest Speaker was Tom Dey (Rochester), on: "Optics for Astronomy"

Six Observers' Group Star Nights were held at Marvin Scott's observatory, and two at Chippawa Creek Conservation Area. Only one had to be cancelled because of bad weather.

This year, the annual Display at the St. Catharines Central Library was held in July. We had only one Public Display in a Shopping Mall this year, at Niagara Square on June 6. Three Public Star Nights were held in John Allen Park.

There were 7 meetings of the executive; two were called for the purchase of a member's 17.5 inch telescope and of a photocopier to replace our aging duplicator, respectively.

WALTER JUTTING, *Secretary*

## OTTAWA CENTRE

Membership in 1987 was 241, made up of 195 regular, 11 youth and 35 life members. The total figure represents a drop of 35 from the all-time high reached in 1986.

*Public Meetings:* The Council sponsored several public meetings during the year:

- January Film Night
- April "Two Peculiar Galaxies: 3C 273 and Centaurus 'A'" by Dr. Jeffrey Hayes (Rutgers University)
- September "The Physics of Vision and Colour". by Dr. W.B. Cowan (National Research Council)

*Council:* The Council held four meetings during the year. Major topics discussed included finances and budgets. Astronotes, the Observatory at Almonte, the possibility of the Centre hosting a General Assembly, and some new program initiatives.

Finances had to be tightly controlled during the first nine months of the year because of the need to construct a new road to the Observatory. Fortunately, thanks to donations from Dr. A.E. Covington, Paul Comision, and Stan Mott, and thanks to a large amount of manual labour contributed by the members themselves, the Centre's finances were in excellent shape at year end.

With respect to Astronotes, Doug George was appointed editor. He replaces Rolf Meier. Council extended a vote of thanks to Rolf for his more than ten years of dedicated service. The December Astronotes was a special issue celebrating its first 25 years of publication. Astronotes is now laser printed.

The annual dinner meeting was held November 13 with over 80 attendees. Everyone enjoyed the excellent talk by Dr. Robert Garrison, from the University of Toronto, about Supernova Shelton 1987a.

*Observers' Group:* Thanks are due to the NRC for giving the Centre the use of meeting rooms each month. These meetings, under the direction of Chairperson Sandra Ferguson, consist mainly of informal talks given by members about current projects. Full coverage was given by the coordinators to upcoming events in the astronomical calendar. All meetings attracted close to or more than 60 persons. Among the highlights, Frank Roy showed slides taken with his 8-inch Schmidt camera. Max Stuart talked about various telescope projects including the 4 inch refractor he is building and a solar telescope he built for the National Museum of Science and Technology. Jack Horwood observed the Quadrantid meteor shower by recording bursts of FM radio waves bouncing off ionized meteor trails. Paul Comision gave several talks on how to observe deep sky objects. Damien Lemay gave a talk on his photographic sky survey and showed some unbelievable slides of winter observing while, literally, buried in snow!

On May 9th members of the Observer's Group took an active part in Astronomy Day events held at the National Museum of Science and Technology. Daniel Rollin and Damien Lemay gave talks on the Milky Way and amateur astronomy Canada, respectively. Howard Simkover spoke on "Planets, Galaxies and Black Holes"; Ken Tapping spoke on "The Radio Sun"; Dr. Peter Millman's talk was entitled "What are Black Holes?", while Peter MacKinnon chaired a panel which conducted a question and answer session. Other panel members were Dr. Ian Halliday and Dr. Paul Feldman. A number of demonstrations and displays were presented by members including: Ron Hall's mirror grinding demonstration, the Centre display and the solar telescope. A major attraction again this year was Real Manseau from Drummondville, Quebec and his beautifully crafted brass instruments.

The Novices' Workshops were continued this year. These are informal sessions for beginners to help them learn the basics of observing. Another popular program, the Junior Astronomers' Club continued this year at the National Museum of Science and Technology.

A small group of Centre members again took part in the "Fall Rhapsody" festival sponsored by the National Capital Commission. Some members also went to the Stellafane convention in Springfield, Vermont and Starfest '87, organized by the North York Astronomical Association. Centre member, Simon Tsang, wrote an article on his visit to Chile last year. This was published in the July issue of *Astronomy* magazine complete with several full-page colour pictures of the southern sky.

*Indian River Observatory:* Use of the Centre's observatory near Almonte was reduced this year as a result of the sale of the property through which the access road passed. The new owners agreed to allow the Centre to continue to use the road until September. Following two weekends of hard work by Centre members and assistance from the Mississippi Valley Conservation Authority, from whom we lease the land, the new road was completed by the Labour Day Weekend. The Radio Telescope underwent several improvements. The dipole array for both antennae were rebuilt. Each antenna now has an array of 12 dipoles. The modifications have resulted in the routine detection of 10 jansky sources. More than 40 discrete sources have been detected including several Quasars.

It was with great regret that the Ottawa Centre received the news of the death of Tom Tothill on January 26th. Before moving to Vancouver, Tom served the Ottawa Centre in many capacities,

including Chairman of the Observer's Group and editor of Astronotes. He also played a major role in building the 16 inch telescope now being used at the Observatory.

Shortly after this, on February 3rd, the Centre lost one of its most stalwart supporters with the death of Ted Bean. Ted's contribution to the Centre over a long period of time was substantial and included Chairman of the Observer's Group, member of Council, instrumentation coordinator and a variety of other posts.

C. ROBIN MOLSON, *Secretary*

## CENTRE DE QUEBEC

Le Centre de Québec a connu une année 1987 bien mouvementée. Il y eut d'abord sept conférences.

janvier	L'almanach graphique – Clermont Vallières.
février	Les objets Messier – Serge Legaré.
mars	Les tables sidérales – Serge Legaré.
avril	Le parc Algonquin – Clermont Vallières.
mai	La spectroscopie multi-objet – Dr Jean-René Roy
octobre	Les constellations – Jean Marie Fréchette
décembre	Le laser en astronomie – Jacques Beauvais.

Les soirées d'observation, les samedis et dimanches où le ciel était dégagé, eurent lieu à l'observatoire du Collège de Lévis à St-Nérée. Plusieurs de nos membres eurent l'occasion de s'initier à l'observation des planètes et des objets Messier avec le C- 14 de l'observatoire et le Quantum 6":f/15 du Centre. En septembre, quelques membres y ont même utilisé la caméra Schmidt 8" mise à la disposition des astronomes québécois par l'association provinciale A.G.A.A. D'autre part, plusieurs de nos membres font, même en ville, de l'observation planétaire appuyée de dessin. D'autres font de la photographie dans des sites plus favorables. D'ailleurs, Clermont Vallières, Denis Martel et leurs amis sont à construire un observatoire de deux étages qui sera doté d'un Newton 16", c'est à St-Luc au bord des Appalaches. Enfin, la comète Bradfield fut observée en ville avec un Tasco 110 mm.

Le Centre de Québec a mis cette année beaucoup d'énergie dans l'animation auprès du public. Il était présent au début d'avril à Expo-sciences régionale de Québec et au début juillet à Expo-sciences internationale à Québec. Nous avons eu l'occasion de rencontrer des astronomes européens et d'offrir avec eux à la population de Québec une soirée d'astronomie sur la Terrasse Dufferin devant le Chateau Frontenac.

Lors du Congrès de l'A.G.A.A. tenu à Drummondville en juin, M. Alphonse Tardif présenta son nouveau photomètre photoélectrique, Luc Simard exposa son radiotélescope avec antenne hélicoïdale et Jean-Marie Fréchette anima un atelier sur l'almanach graphique. Mentionnons que Pierre Bouliane remplaça Mario Lapointe à la présidence de l'A.G.A.A., chacun étant membre du Centre de Québec. Lors de l'assemblée générale on félicita chaleureusement M. Damien Lemay qui présentait fièrement sa médaille Chant. Enfin, le Centre de Québec y fut désigné l'hôte du congrès 1988.

Au début d'août, le camp d'astronomie de Port-au-Saumon dans Charlevoix accueillait encore des groupes de jeunes pour des séjours de une ou deux semaines sous la direction pédagogique de Mario Lapointe. L'équipe d'animation comptait Clermont Vallières parmi ses membres. D'autre part, des ateliers d'initiation à l'astronomie regroupant chacun 12 participants furent offerts au printemps et à l'automne par l'Université Laval qui en confiait l'animation à Jean-Marie Fréchette.

Enfin l'almanach graphique 1988, doté d'une subvention de la S.R.A.C., a été produit cette fois avec la collaboration personnelle du Dr. Paul Marmet de l'Institut Herzberg d'astrophysique. Un projet de refonte de la programmation de l'almanach est en cours mais celui-ci nécessite a des efforts considérables

avant d'arriver à terme. L'almanach 1988 a déjà connu une diffusion provinciale en page centrale du numéro de nov-déc 87 de la revue le Québec astronomique publiée par l'A.G.A.A. Il est toujours à la disposition gratuite de ceux qui en font la demande au Centre de Québec qui sera heureux de constater que son travail est apprécié. Adressez vos demandes à C.P. 9396 Sainte-Foy P.Q. G1V 4B5.

YVON LABADIE, *Secrétaire*

### ST. JOHN'S CENTRE

This year our Centre has continued with the practice of having Sunday meetings at the Marine Institute in St. John's. Our membership has increased from last year's total to about twenty members.

For public education on International Astronomy Day, a display was put on in a local shopping mall. Included in the show were videos, posters, T-shirts, and a rapidly dwindling supply of educational pamphlets. We hope to use the T-shirt design in future fund raising efforts. Also with public education, a course in conjunction with the University was offered, and we plan to distribute Handbooks in institutions and wherever else they may be sold.

The Observing Group has not gone very well this year, but there was one excellent outing by several members. We intend to make more regular observations and meet in members' houses if the sky, as all too frequently happens, clouds over. One member is well on the way to having a computer automated telescope.

For the future year we hope to gain access to the Marine Institute's Planetarium and also have our site selection committee find a site for an observatory. We welcome other Centres' suggestions, based on their experience with setting up an observatory.

D.M. BOURGEOIS, *Secretary*

### SARNIA CENTRE

Sarnia Centre held several observation nights through the year. Small groups involving from 2 to 6 members were the major focus of this year's activities. Observations were conducted from sites in Lambton County, the City, and with other groups.

The Sarnia Centre held four regular meetings. These meetings took place on January 30th, February 27th, April 24th, and November 10th, 1987.

The Sarnia Centre publication "Urania" made the transition from a newsletter to a journal format during the year. The January issue was the one page newsletter; while there were two issues of the journal format during the second half of the year. It is hoped that 4 issues of "Urania" can be published during 1988.

Members of the Centre attended the General Assembly in Toronto. Also, our National Council representative travelled to Halifax to attend the September National Council meeting.

Members of the Centre attended Starfest '87, Stellafane, and the Windsor Centre star night at Eagle, Ontario (on Lake Erie).

The year 1988 will mark the division of Sarnia into 2 separate municipalities. The west part will remain the City of Sarnia, while the east will be known as "Clearwater", Ontario. Although most of our meetings will be in Clearwater, our Centre will continue to be known as Sarnia Centre.

J. TOWNSEND, *Recorder*

**SASKATOON CENTRE – No Report Received**

## TORONTO CENTRE

The big event for the Toronto Centre in 1987 was the General Assembly. A potential organizational nightmare, the May weekend was well-organized, well-attended, and a lot of fun for everybody. The committee, chaired by Randy Attwood, consisted of Steven and Maureen Spinney, Kim Rowe, Birgitt Plumbohm, Bob May, Mary Anne Harrington, John Percy, Ralph Chou, Ian McGregor, and Tom Quigley.

Public education activities slowed down this year after the particularly hectic previous year with comet Halley. Members did, however, greet the public at Harbourfront for Astronomy Day and public star nights. We also held a city star party, and we held several sessions at the Royal Ontario Museum. Randy Attwood produced 11 editions of "Astronomy Toronto", the Toronto Centre's cable television show.

In 1987, there were nine Members' Nights organized by the Observational Activities Committee under Steven Spinney, Kim Rowe, and Randy Attwood. Themes of some of the presentations included telescope-making, observing the winter sky, variable stars, and Messier objects.

The 1986 awards banquet featured Dr. Stillman Drake, Professor Emeritus, Institute for the History and Philosophy of Science and Technology. Winners of the Toronto Centre awards were: Eric Galt for the Bert Winnearls Award; Steven Spinney for the Andrew Elvins Award; and Doug Clapp for the Jesse Ketchum Award. Membership certificates for service to the Toronto Centre went to Randy Attwood and Steven Spinney, and certificates for longevity of membership went to P.S. Morton, Jim Low, P.J. Harris, F.P. Scholer, R.B. Larson, and H.D. Armstrong.

The Programme Committee under Dr. John Percy organized a series of six lecture meetings, including a joint meeting with the Royal Canadian Institute. The programme for the year was this:

November (1986)	Jay Pasachoff on the sun and solar eclipses
November	Randy Attwood on <i>Voyager</i> at Uranus
January (1987)	Dr. Ulrich J. Krull on extraterrestrial biochemicals in the early solar system
February	Douglas Paul on connecting the big universe to the small child
March	Dr. Ralph Chou on eye protection for the solar observer
June	Dr. Gary Crawford on archaeoastronomy

Thanks to Steven Spinney and Glenn Slover for operating the slide projector and to Paul and Eric Gunter, Eric Galt, and Darnley Wright for being responsible for the refreshments after the meetings.

In 1987, membership secretary Birgitt Plumbohm recorded 884 regular, 69 youth, and 82 life members, for a total of 1035. This represents a decline of 7.8 percent over the 1985/86 membership year.

Because of the number of new members this year, the New Members Committee under Mary Anne Harrington and Kathleen Fall held a special session to welcome them.

It is with regret that we record the deaths of two members in the past year: David Mills, Sr., and Ray Broadfoot.

The observatory in Schomberg is still closed, although the Observatory Maintenance Committee, i.e., Bob May, has ensured that the instrument and building are still in good condition. Within the foreseeable future, the Toronto Centre Council hopes to find a new site for our observatory and build a new facility.

Our newsletter SCOPE, under editor Cliff Hand and assistant editor Mary Anne Harrington, continued its vital role of maintaining communications with the membership.

The optical workshop, revived by Jack Winzer in January, has become extremely popular and will continue to operate this year.

Paul Markov canvassed the membership and compiled the Toronto Centre's third annual *Directory of Observers*.

Thanks should be recorded for all Toronto Centre councillors (in particular to the retiring councillors) and volunteers who continually and tirelessly contribute their time and efforts.

Finally, thanks must go on record to the McLaughlin Planetarium for letting us use their facilities and mailing address.

BETTY ROBINSON, *Secretary*



## VANCOUVER CENTRE

We regret to report the deaths of two valued members. Tom Tothill, councillor, president, editor of NOVA and all-round astronomer, and Dr. Michael Ovenden, professional astronomer, former president, and our last honorary president. Their many contributions to our Centre are deeply appreciated.

12 council meetings and 12 general meetings were held. The annual dinner was in February with Dr. Gordon Walker as speaker. Field trips were made to Goldendale Observatory, to Manning Park and to Mount Kobau. Astronomy Day on May 9 was well attended with good weather, and Astroswap in November was successful. We again participated in the "Celebration of Nature" at Campbell Valley Park, sponsored by the Greater Vancouver Regional District. The observers' group chose a new and better site at Aldergrove Lake Park for their viewing.

Another loss was when our president, Karl Miller, was transferred to Toronto for business reasons, after 1 year and 8 months in office. We miss his leadership and expertise. He will continue to be our National Representative.

### *Meetings during 1987*

- January "Remote sensing and Image processing" by Dr. John S. MacDonald.
- February Memorial to Tom Tothill, held in the Planetarium.
- March "New developments in large telescope fabrication." by David Halliday (Coast Steel).
- April "Show and Tell" by members.
- May Planetarium Show.
- June "Planet earth from the Martian point of view." by Jay Anderson, (Atmospheric Environment Service).
- July Report on "Riverside '87." by Greg Soderling.
- August Report on "field trip to east of Manning Park." by Klaus Walter.
- September "Events leading up to the founding of the Dominion Observatory in Ottawa." by Mary Grey, National President.
- October Planetarium Show – "the mystery of SS433."
- November "Latest astrophotography." by Jack Newton.
- December Annual meeting: "Image enhancement processing." by Dr. Lloyd Higgs (DRAO).

MRS. SALLY BAKER, *Secretary*

## VICTORIA CENTRE

Victoria Centre enjoyed an increased membership for the 1986-87 year, with 112 Regular, 5 Youth and 26 Life Members, for a total of 143 (up from 127 in the previous year). We continue to reach a wider audience because of such appealing programmes as "Summer Evenings Under the Stars" and Astronomy Day. As well astronomy is being included as part of the grade 9 and 10 science courses in public schools and interest from the education sector is growing.

We are also pleased to have had the opportunity of participating in the Victoria Hobby Show and the Prime '55 Festival. Both of these events provided us with an opportunity to participate in community events and lent exposure to our Centre's activities. Special thanks to George Ball and to Gene Steeves for their many hours of planning and making themselves available to "man the boat" at the Hobby Show ... a job well done!

Our regular monthly meetings were well attended, and featured a wide range of topics and interesting speakers. The 1986-87 year started off with a presentation by Dr. David Crampton, of the Dominion Astrophysical Observatory, whose topic was the "Largest Entities in the Universe".

In January popular member Brian Whittaker treated us to a slide show of his travels throughout the Southwestern United States and showed us slides not only of several of the prominent observatories there, such as Kitt Peak and Mount Palomar, but also stunning photos of the Grand Canyon and surrounding countryside.

February's meeting featured Dr. Jim Hesser, Director of the Dominion Astrophysical Observatory. Dr. Hesser presented a fascinating talk on the search for extraterrestrial life.

In March, Dr. John Kormendy, also from D.A.O., shared with us information on black holes in the Nuclei of Galaxies.

- April Members' Activities Night. Many members brought us up to date on their pet projects. In addition to seeing the "last" slides of Halley's Comet, we heard from the telescope making group and got the latest reports on upcoming star parties such as Mount Kobau.
- May Dr. Colin Scarfe, UVIC's resident astronomy expert and specialist on the subject of eclipsing binaries. Dr. Scarfe has been a long-time member of the R.A.S.C., and his lectures are always very well received.
- June Philip Stooke, our Centre's acting president and a graduate student in planetology, spoke on the study of the geography and geology of the nucleus of Halley's Comet.
- August "Summer Evenings Under the Stars" program. This program has proved very popular with the public, and afforded an opportunity for free participation in tours of D.A.O., as well as hearing and seeing presentations by Jack Newton and Philip Stooke.
- September The R.A.S.C.'s National President, Mary Grey, spoke on the history surrounding the building of the Dominion Observatory in Ottawa.
- October The topic of how astronomy deals with astrology was discussed by Mr. Andy Fraknoi, Exec. Officer of the Astronomical Society of the Pacific. Andy Fraknoi is instrumental in the planning of the joint meeting to be held with our centre's General Assembly next summer.

In conclusion, our Centre had a very busy year, and is heading into an even busier one. We're all looking forward to an exciting G.A. and the opportunity to show off our Centre to astronomers from all over North America.

ALICE NEWTON, *Secretary*

## WINDSOR CENTRE

1987 was another grand year for the Windsor Centre. In January Mary Grey, our National President, visited our Centre and gave a fine presentation including a silent film made on the old Dominion Observatory, in 1920. On the 25th of April, Dan Taylor and a few other Centre members witnessed the spectacular occultation of Venus by the moon at the Eagle observing site.

Astronomy Day was supported in a strong positive way by the Windsor Centre, on the 9th of May. A display of pictures and telescopes was at the Main Branch of the Windsor Public Library. A similar display was at Erie Hall on the University of Windsor campus. A number of large telescopes were outside; used for observing that night. About 400 persons attended these events.

At the Essex District Cub Camp on 29 May, Al Legary, Tim Bennett, Brian Perry and other members of the Centre hosted 400 cubs and their leaders to an educational talk and in viewing the heavens with their instruments. Some members attended Stellafane and Starfest. It should be noted that the four mobile observatories of Brian Perry, Al Legary, Tim Bennett and Lorison A. Durocher were the unofficial highlights of the latter convention.

On the 13th of November our Centre and the Physics Department of the University of Windsor hosted Terence Dickinson to speak at Erie Hall. His presentation was based on his book "The Universe and Beyond." About 150 persons were present.

During our "Annual Meeting," on the 17th of November, our president, Lorison A. Durocher was awarded the Windsor Centre Plaque for long and extra mile service, rendered to the Centre. Matt Bourdeau, our Director of Observing, received the Messier Certificate, as did Dan Taylor, the former person at age 16 is probably one of the youngest people to obtain such. Also, for noted service to the Centre, three people were given Membership Certificates: Patrick Langin, Al Legary and Steve Pellarin.

Special thanks go to Mary Grey, for her visit. To Dr. John Huschilt, for assistance lent on Astronomy Day. To Al Legary, Brian Perry and Tim Bennett for their public education efforts. To Matt Bourdeau

for organizing the library display and Lorison A. Durocher on same for the university one. Also to Mike Best and Ian Stuart for their presentations. As well to Randy Groundwater for organizing the social on 11 December. The Windsor Centre had 9 membership meetings and one social, 9 observing sessions at the Eagle site and 3 Council meetings.

The meeting agenda for 1987 was as follows:

- January Mary Grey – “The Founding of the Dominion Observatory: The Early Years.”
- February Al Legary talked about his home built radio telescope. Brian Perry’s discussion centred on a computer controlled tracking system for telescopes.
- March Lorison A. Durocher – “The Solar System Close Up.”
- April Mike Best (Science reporter, Detroit News) – “The Future of Space.”
- May Film night: “Skies of the Andes,” also “The Observatories” and “Stars, Galaxies and the Southern Skies.”
- June Ian Stuart (Hamilton Centre – Speaker exchange) – “The Planet Saturn.”
- September Lorison A. Durocher on Stellafane ’87. Brian Perry on Starfest ’87. Tim Bennett on observing at Eagle, June ’87.
- October Randy Groundwater – “Know Your Constellations.”
- November Steve Pellarin – “SN 1987A.”

C. JOADY ULRICH, *Secretary*

## WINNIPEG CENTRE

- January Winnipeg Centre had its general meeting in conjunction with the Manitoba Astronomy Club’s meeting. MAC is a group of students who are not only learning about the theory of astronomy, they are actually doing it, by making telescopes, holding observing nights, and other interesting activities. January was also the month in which Ian Shelton visited our Centre, and he was with us directly before he discovered Supernova 1987A; we’re claiming to be his inspiration!!
  - February The general meeting featured a Beginners’ Potpourri, which covered anything and everything about astronomy.
  - March Chris Brown, a relatively new member of Winnipeg Centre, spoke about how he has used and learned about astrophotography. Chris told us about what it is he is doing at the observatory, and then he showed us the beautiful photos that he has taken.
  - April Another Winnipeg member, Chris Rutkowski, gave us an interesting look at the Hubble Telescope, and what it holds in store for us as amateur astronomers.
  - May Winnipeg Centre acquired a PDP-11 computer, and Andrew Lawless showed us the many ways that this computer can be used by members.
  - June We took a break from regular meetings and held a Family Barbeque at Glenlea Observatory. After munching on burgers and ice cold watermelon, we went into one of the classrooms where the members who had attended the G.A. showed their slides and reviewed some of the highlights that took place in Toronto.
  - July/August There were no regular meetings scheduled, but many star parties and observing nights went on at Glenlea through the summer months.
  - September This month held a host of activities for the Winnipeg Centre, beginning with a banquet for Ian Shelton co-sponsored by us and the Manitoba Planetarium. Ian showed slides of where he had been over the last few years, and then told us and showed us what he has been doing up there. At the ceremony, Ian was made Honorary President of Winnipeg Centre, and was also presented with the Order of the Buffalo Hunt, the highest honour that can be bestowed upon a person in Manitoba.
- At the general meeting, Father Firmin Michels gave us some interesting thoughts to ponder when he spoke on the similarities and differences between theology and astronomy.



Several of our members began a photometric program which has blossomed into quite a large project. They are looking for others who are interested in sharing data and techniques.

- October Annual meeting of members at which the present Executive and Councillors were elected.
- November The writer gave an extended version of the talk she presented at the G.A., on Women in Space. This presentation gave insight into the problems and successes that women in the space/astronomy program had, and how they learned to deal with and accommodate these difficulties.
- December Chris Rutkowski spoke on the Polo Park Sundial, which was destroyed when Polo Park was redesigned 2 years ago. This was the last sundial in Manitoba, other than a very small one in Assiniboine Park. Chris then went back in history and showed slides of other types of sundials and standing stones that have become historical landmarks throughout the world.

MRS. MYRA RUTKOWSKI, *Secretary*

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*1st Vice-President* – Lorence Mlodzinski, 901 Fleming Ave, Winnipeg, R2K 1V7  
*2nd Vice-President* – Chris Rutkowski, P.O. Box 1918, Winnipeg, R3C 3R2  
*Secretary* – Mrs. Myra Rutkowski, P.O. Box 1918, Winnipeg, R3C 3R2  
*Treasurer* – Chris Brown, 183 Canora Street, Winnipeg, R3G 1T1  
*Librarian* – Chris Rutkowski, Box 1918, Winnipeg, R3C 3R2  
*Editor* – Stan Runge, 15 Albina Way, Winnipeg, R2R 1A5  
*Asst. Editor* – Myra Rutkowski, 16-825 Corydon Ave, Winnipeg, R3M 0W6  
*Council* – B. Fairley, L. Gamache, A. Lawless, G. Mathews, P. Paradis, S. Runge  
*National Council Representative* – John Haines, 111 Gull Lake Rd, Winnipeg, R3T 4X1



### GOLD MEDAL OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

The Gold Medal of the Society was established in 1905 as an encouragement to the study of astronomy. It is awarded to the graduating fourth year University of Toronto Arts & Science student who has both an A standing in his fourth year and the highest average mark in the two full courses and two half courses in astronomy which are contained in the Astronomy specialist programme, provided this average is over 80%. If no student satisfies these criteria, the award is not made.

1906 – *W.E. Harper	1937 – D.A. MacRae	1968 – P.G. Martin
1907 – *R.M. Motherwell	1940 – W.F.M. Buscombe	1970 – J. Kormendy
1909 – *R.K. Young	1948 – R.W. Tanner	1971 – Blake F. Kinahan
1910 – *R.J. McDiarmid	1949 – I. Halliday	1972 – M.J. McCutcheon
1911 – R.S. Sheppard	1956 – D.C. Morton	1976 – Chris Rogers
1913 – *E.A. Hodgson	1960 – C.R. Purton	1977 – M. De Robertis
1914 – G.S. Campbell	1961 – R.C. Henry	1978 – D.R. Gies
1926 – *F.S. Hogg	1962 – J.R. Percy	1979 – N. Duric
1929 – P.M. Millman	1963 – P.H. Reynolds	1981 – T.C. Box
1931 – W.S. Armstrong	1965 – A.F.J. Moffat	1982 – M.J. Gaspar
1933 – K.O. Wright	1966 – W.A. Sherwood	1984 – Glenn D. Starkman
1935 – Miss F.S. Patterson	1967 – R.H. Chambers	1985 – G.A. Drukier
		1987 – Man Hoi Lee

\*Deceased

### CHANT MEDAL OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

The Chant Medal of the Society was established in 1940 in appreciation of the great work of the late professor C.A. Chant in furthering the interests of astronomy in Canada. This medal is awarded, not oftener than once a year, to an amateur astronomer resident in Canada on the basis of the value of the work carried out in astronomy and closely allied fields of original investigation.

Awards have been made to the following:

1940 – Bertram J. Topham (Toronto)	1953 – Jean Naubert (Centre d'Astronomie de Montréal)
1941 – H. Boyd Brydon (Victoria)	1955 – *Frank J. DeKinder (Montréal)
1942 – *W.G. Colgrove (London)	1956 – Maurice Drolet (Quebec)
1943 – *Cyril G. Wates (Edmonton)	1959 – Earl Milton (Edmonton)
1945 – Paul-H. Nadeau (Quebec)	1967 – R.R. Thompson (Toronto)
1948 – Isabel K. Williamson (Montreal)	1979 – Rolf G. Meier (Ottawa)
1949 – Frank Sisman (Hamilton)	1980 – David Levy (Kingston)
1950 – *F. Keith Dalton (Toronto)	1986 – Warren Morrison (Kingston)
1951 – DeLisle Garneau (Centre d'Astronomie de Montréal)	1987 – Damien Lemay (Quebec)

### KEN CHILTON PRIZE

The Chilton Prize was established in 1977 by the National Council of the Society, in remembrance of Ken E. Chilton, an active member of the Hamilton Centre. The prize is awarded annually to an amateur astronomer, resident in Canada, in recognition of a significant piece of astronomical work carried out or published during the year.

Awards have been made to the following:

1978 – J. Newton (Victoria)
1979 – W. Morrison (Kingston)
1981 – C. McCaw (Vancouver)
1983 – C. Spratt (Victoria)



**SERVICE AWARD MEDAL  
OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA**

The Service Award was established in 1959 and, on recommendation of a special committee of the National Council, this small bronze plaque is presented to members who have performed outstanding service to a Centre or to the National Society.

- |   |   |
|---|---|
| 1959 – *E.J.A. Kennedy (Nat. Secretary)   | 1972 – Vern Ramsay (Toronto)                    |
| *J.H. Horning (National Treasurer)        | B.F. Shinn (Winnipeg)                           |
| 1960 – *Charles M. Good (Montreal)        | F. Schneider (Hamilton)                         |
| Miss F. Laforest (Montréal)               | 1973 – Fred P. Lossing (Ottawa)                 |
| Frederic L. Troyer (Toronto)              | 1974 – Ian Halliday (Ottawa)                    |
| 1961 – *Robert Peters (Victoria)          | Fred Williams (Victoria)                        |
| 1962 – Jean Asselin (Montréal)            | 1975 – D.J. FitzGerald (Toronto)                |
| Robert J. Clark (Vancouver)               | 1976 – F. Loehde (Edmonton)                     |
| *Jesse Ketchum (Toronto)                  | *Ken Chilton (Hamilton)                         |
| Joseph A. Pearce (Victoria)               | R. Belfield (Winnipeg)                          |
| 1963 – Edwin E. Bridgen (Montreal)        | Mrs. P. Belfield (Winnipeg)                     |
| Miss M. Burland (Ottawa)                  | 1977 – P. Marmet (Quebec)                       |
| A. Vibert Douglas (Kingston)              | J.R. Percy (Toronto)                            |
| 1964 – *C.S. Beals (Ottawa)               | *Mrs. D. Russell (St. John's)                   |
| *M.W. Burke-Gaffney, S.J. (Halifax)       | 1978 – Mrs. Marie Fidler Litchinsky             |
| W.T. Goddard (Hamilton)                   | (Calgary & Toronto)                             |
| 1965 – *D.C. Bawtenheimer (Windsor)       | 1979 – *R. Noel de Tilly                        |
| *John F. Heard (Toronto)                  | (Centre d'Astronomie de Montréal)               |
| A.M. Crooker (Vancouver)                  | A.W. Scott (Toronto)                            |
| *Ernest S. Keeping (Edmonton)             | 1980 – S.A. Mott (Ottawa)                       |
| *W.S. Mallory (Hamilton)                  | 1981 – *L.E. Coalier (Centre d'Astro. Montréal) |
| 1966 – P. Lemieux (Montreal)              | A. Covington (Ottawa)                           |
| *S. Litchinsky (Calgary)                  | H. Creighton (Toronto)                          |
| W.J. McCallion (Hamilton)                 | Miss I.K. Williamson (Montreal)                 |
| W.A. Warren (Montreal)                    | 1982 – D.P. Hube (Edmonton)                     |
| 1967 – H.S. Hogg (Toronto)                | G.N. Patterson (Saskatoon)                      |
| P.M. Millman (Ottawa)                     | 1983 – C. Aikman (Victoria)                     |
| *R.J. Northcott (Toronto)                 | L.A. Higgs (Ottawa)                             |
| *H. Simard (Montreal)                     | 1984 – *L.V. Powis (Hamilton)                   |
| J.F. Wright (Vancouver)                   | J.A. Winger (Hamilton)                          |
| 1968 – *D.R.P. Coats (Calgary & Winnipeg) | P. Jedicke (London)                             |
| George Ball (Victoria)                    | H.N.A. Maclean (Niagara)                        |
| *Herbert Fox (Hamilton)                   | *C. Hallam (Windsor)                            |
| 1970 – Norman Green (Hamilton)            | H. Lee (Windsor)                                |
| J.E. Kennedy (Saskatoon)                  | 1985 – J. Cam Fahrner (Calgary)                 |
| 1971 – *K.B. Meiklejohn (Calgary)         | 1986 – Randall Brooks (Halifax)                 |
| J.N.R. Scatliff (Winnipeg)                | Leo Enright (Kingston)                          |
|   | 1987 – R.P. Broughton (Toronto)                 |
|   | G.S. Clark (Toronto)                            |

\*Deceased

### **SIMON NEWCOMB AWARD**

This award was instituted in 1978 to recognize literary ability among non-professional members of the Society.

- 1979 – William J. Calnen (Halifax)
- 1981 – Christopher Rutkowski (Winnipeg)
- 1982 – Phil Mozel (Toronto)
- 1985 – Donald F. Trombino (U.S.A.)
- 1986 – David Chapman (Halifax)
- 1987 – Peter Jedicke (London)

### **DECEASED MEMBERS FOR 1987**

- Ms. G. Hill (Montreal)
- E. Kindl (Montreal)
- D. Mills Sr (Toronto)
- R. Broadfoot (Toronto)
- Dr. M. Ovenden (Vancouver)
- T. Tothill (Vancouver)
- H. Crook (Victoria)
- Dr. F.A. Linville (U.S.A.)
- Dr. L. Goldberg (U.S.A.)
- Dr. R.v.d. R. Woolley (South Africa)
- Prof. B.S. Strömgren (Denmark)

## CENTRES TREASURERS' REPORTS FOR 1987

	Calgary	Edmonton	Halifax	Hamilton	Kingston	Kitchener-Waterloo	London	Montreal	CF Montreal	Niagara
<b>REVENUE</b>										
Membership Fees	6641.21	3479.00	2430.00	1938.62	1188.85			3714.00	1000.00	1861.40
Life Members Grants	160.00	110.00	280.00	30.00	90.00			210.00	16.00	30.00
Donations	—	—	—	1779.50	30.00			15.00	25.00	545.37
Educational Activities	—	—	—	321.00	—			—	—	—
Interest & Dividends	—	—	—	128.82	10.08			3212.62	—	7.33
Sales of Handbooks (Net)	362.17	313.00	133.65	128.82	4.00			3.00	9.00	28.00
Advertising	—	—	(70.55)	—	—			—	—	—
General Assembly (incl. Travel Grants)	—	—	125.40	—	—			—	—	—
Other Grants	—	—	1000.00	—	—			—	—	—
Miscellaneous	—	284.00	141.08	935.32	—			2050.61	75.00	4964.70
<b>Total Revenue</b>	<b>9759.38</b>	<b>4186.00</b>	<b>4069.58</b>	<b>5133.26</b>	<b>1323.93</b>			<b>9205.23</b>	<b>1125.00</b>	<b>7436.80</b>
<b>EXPENDITURES</b>										
Fees remitted to National Office	2709.00	1743.00	1467.00	711.00	429.00			2238.00	600.00	657.00
Library	107.80	465.00	249.87	176.41	—			386.21	50.00	—
Meetings & Newsletters	1391.42	1437.00	1709.67	503.65	394.36			819.26	200.00	540.64
Annual Dinner (Net)	1318.62	—	25.00	—	—			—	—	2432.50
General Assembly (incl. Travel Grants)	222.10	—	426.80	—	—			301.00	—	—
Equipment & Supplies	191.28	607.00	224.17	1639.42	—			233.99	—	4.72
Office Administration	—	89.00	109.90	675.10	—			435.43	75.00	38.50
General Expenses & Audit	—	50.00	—	275.00	—			315.99	50.00	—
Educational Activities	1034.81	80.00	—	—	58.46			—	—	—
Insurance	—	—	—	432.00	—			808.78	25.00	—
Awards & Donations	326.12	50.00	114.91	—	92.41			100.00	25.00	—
Operating Expenses-Observatory	—	—	—	1270.23	—			473.72	100.00	—
Miscellaneous	1625.23	42.00	180.50	470.54	57.00			71.75	—	4050.94
<b>Total Expenditures</b>	<b>8926.38</b>	<b>4563.00</b>	<b>4507.82</b>	<b>1031.23</b>	<b>1031.23</b>			<b>6184.13</b>	<b>1125.00</b>	<b>7724.30</b>
Surplus or (Deficit) on Operations	833.00	(377.00)	(438.24)	(1020.09)	292.70			3021.10	—	(287.50)
<b>Balance from 1986</b>	<b>8835.47</b>	<b>7073.00</b>	<b>1334.05</b>	<b>6153.35</b>	<b>407.19</b>			<b>6136.95</b>	<b>—</b>	<b>925.62</b>
<b>Balance to 1987</b>	<b>9668.47</b>	<b>6696.00</b>	<b>895.81</b>	<b>—</b>	<b>699.89</b>			<b>9158.05</b>	<b>—</b>	<b>638.12</b>
Other Assets	58992.96	3512.00	5013.15	—	—			—	—	3899.65

NOT REPORTED

NOT REPORTED

## CENTRES TREASURERS' REPORTS FOR 1987

	Ottawa	Quebec	St. John's	Sarnia	Saskatoon	Toronto	Vancouver	Victoria	Windsor	Winnipeg
<b>REVENUE</b>										
Membership Fees	5245.00	2932.00	300.00	355.00	905.00	23710.50	3667.50	3430.00	—	2140.00
Life Members Grants	340.00	30.00	20.00	10.00	40.00	830.00	200.00	260.00	—	—
Donations	995.21	154.00	—	—	152.68	626.00	786.90	420.24	—	—
Educational Activities	790.00	—	—	—	—	—	—	—	—	—
Interest & Dividends	512.00	335.85	116.40	22.30	141.68	2061.61	135.36	1417.47	—	—
Sales of Handbooks (Net)	24.00	1410.50	27.00	6.00	9.00	-18.00	—	178.80	—	—
Advertising	50.00	—	—	—	—	1680.00	60.00	60.00	—	—
General Assembly (incl. Travel Grants)	—	—	176.00	—	—	434.25	175.00	—	—	—
Other Grants	—	554.00	—	—	—	—	—	—	—	686.27
Miscellaneous	1067.00	132.33	112.00	—	175.00	480.70	82.50	382.00	—	1334.91
<b>Total Revenue</b>	<b>9023.21</b>	<b>5548.68</b>	<b>751.40</b>	<b>393.30</b>	<b>1423.36</b>	<b>29805.06</b>	<b>5257.26</b>	<b>6144.51</b>	—	<b>4161.18</b>
<b>EXPENDITURES</b>										
Fees remitted to National Office	2997.00	996.00	180.00	213.00	531.00	13875.00	1863.00	1710.00	—	910.00
Library	—	129.83	—	—	—	21.43	170.32	113.93	—	196.00
Meetings & Newsletters	1074.24	373.81	—	20.00	317.51	5522.35	2078.49	1262.84	—	315.80
Annual Dinner (Net)	1058.11	—	—	—	—	235.03	—	-41.77	—	—
General Assembly (incl. Travel Grants)	68.00	—	176.00	11.53	—	—	175.00	198.02	—	—
Equipment & Supplies	—	1008.05	—	42.00	—	—	470.00	394.42	—	—
Office Administration	204.96	189.60	—	—	176.97	3082.65	78.76	305.10	—	—
General Expenses & Audit	—	250.42	60.00	14.65	—	375.00	342.33	—	—	—
Educational Activities	561.97	135.00	—	6.00	33.89	2743.68	40.93	—	—	—
Insurance	—	299.75	—	—	317.00	400.00	27.00	225.00	—	—
Awards & Donations	—	—	—	—	—	3.57	235.50	50.00	—	—
Operating Expenses-Observatory	1509.84	400.00	—	—	—	1.00	—	585.50	—	2623.06
Miscellaneous	147.85	1373.14	277.86	4.00	49.50	1693.09	—	32.00	—	—
<b>Total Expenditures</b>	<b>7621.97</b>	<b>5155.60</b>	<b>693.86</b>	<b>311.18</b>	<b>1425.87</b>	<b>27952.80</b>	<b>5481.33</b>	<b>4835.04</b>	—	<b>4044.86</b>
Surplus or (Deficit) on Operations	1401.24	393.08	57.54	82.12	(2.51)	1593.84	(224.07)	1309.47	—	116.32
<b>Balance from 1986</b>	<b>11880.48</b>	<b>5121.39</b>	<b>124.55</b>	<b>438.03</b>	<b>15859.69</b>	<b>36139.55</b>	<b>7123.73</b>	<b>1866.46</b>	—	<b>297.70</b>
<b>Balance to 1987</b>	<b>13281.72</b>	<b>5514.47</b>	<b>182.09</b>	<b>520.15</b>	<b>15857.18</b>	<b>37733.39</b>	<b>6899.66</b>	<b>3175.93</b>	—	<b>416.02</b>
Other Assets	—	—	—	—	—	—	—	—	—	36920.00

NOT REPORTED

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA  
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA

FINANCIAL STATEMENTS

DECEMBER 31, 1987

*C. J. Tinkham & Associates*

*C. J. Tinkham & Associates*

Chartered Accountants

C. J. TINKHAM, C.A., C.M.C.  
D. C. TINKHAM, B.COMM., C.A., C.M.C.  
P. J. BROCKLESBY, B.B.A., C.A.

2842 BLOOR STREET WEST  
TORONTO - ONTARIO  
M8X 1B1

AUDITORS' REPORT

To the Members  
of  
THE ROYAL ASTRONOMICAL SOCIETY OF CANADA  
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA

We have examined the balance sheet of The Royal Astronomical Society of Canada as at December 31, 1987, and the statements of revenue and expenditure and deficit, for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of the Society as at December 31, 1987, and the results of its operations for the year then ended in accordance with the accounting principles set out in Note 1 applied on a basis consistent with that of the preceding year.

TORONTO, Ontario  
February 17, 1988

*C. J. Tinkham & Associates*  
CHARTERED ACCOUNTANTS

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA  
 LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA  
BALANCE SHEET  
AS AT DECEMBER 31, 1987

A S S E T S

	<u>1987</u>	<u>1986</u>
<u>CURRENT</u>		
Cash and short term deposit	\$ 139,265	\$ 90,122
Accounts receivable	25,075	26,779
Prepaid expenses	269	216
Loan receivable	-	-
Accrued interest receivable	<u>8,347</u>	<u>8,542</u>
	<u>172,956</u>	<u>125,659</u>
<u>INVESTMENTS</u>		
Marketable securities - at cost	<u>3,019</u>	<u>3,019</u>
<u>SPECIAL PURPOSE FUNDS (Schedule C)</u>		
Cash and short term deposits (including accrued interest)	32,754	32,191
Marketable securities - at cost	4,000	4,000
Guaranteed investment certificate	<u>91,600</u>	<u>91,600</u>
	<u>128,354</u>	<u>127,791</u>
<u>FIXED</u>		
Office building, furniture, equipment, library (nominal value)	<u>1</u>	<u>1</u>
	<u>\$ 304,330</u>	<u>\$ 256,470</u>

Approved on behalf of the Council  
of the Society

*Philip M. King*  
.....President

*B. Ralph Chan*  
.....Treasurer

<u>L I A B I L I T I E S</u>		
	<u>1987</u>	<u>1986</u>
<u>CURRENT</u>		
Accounts payable and accrued charges	\$ 41,697	\$ 29,424
Deferred revenue		
- Membership fees for ensuing year	23,875	23,941
- Journal and handbook subscriptions	20,985	20,595
- Unappropriated life membership fees (Schedule A)	<u>33,587</u>	<u>34,581</u>
	<u>120,144</u>	<u>108,541</u>
<u>SPECIAL PURPOSE FUNDS</u> (Schedule C)	<u>128,515</u>	<u>127,791</u>
<u>OPERATING SURPLUS</u>	<u>55,671</u>	<u>20,138</u>
	<u>\$ 304,330</u>	<u>\$ 256,470</u>

*C. J. Tenkham & Associates*



THE ROYAL ASTRONOMICAL SOCIETY OF CANADA  
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA  
STATEMENT OF OPERATING SURPLUS  
FOR THE YEAR ENDED DECEMBER 31, 1987

	<u>1987</u>	<u>1986</u>
<u>SURPLUS</u> (DEFICIT), January 1	\$ 20,138	(\$ 2,602)
<u>Add</u> : Excess of revenue over expenditure	35,533	22,740
<u>SURPLUS</u> , December 31	\$ 55,671	\$ 20,138

*C. J. Finkham & Associates*

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA  
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA  
STATEMENT OF REVENUE AND EXPENDITURE  
FOR THE YEAR ENDED DECEMBER 31, 1987

<u>REVENUE</u>	<u>1987</u>	<u>1986</u>
Membership fees		
- R.A.S.C. Centres	\$ 35,172	\$ 31,592
- Individual members	19,489	16,473
- Life membership: annual appropriation	<u>1,794</u>	<u>1,820</u>
	<u>56,455</u>	<u>49,885</u>
Grants and Donations		
- Government of Canada-annual grant	-	10,400
- Miscellaneous donations	<u>132</u>	<u>117</u>
	<u>132</u>	<u>10,517</u>
Publications		
- R.A.S.C. Journal: subscriptions	22,936	21,164
reprints	171	755
publishing revenue	7,111	9,849
- Observer's Handbook	<u>86,341</u>	<u>80,720</u>
	<u>116,559</u>	<u>112,488</u>
Miscellaneous income		
- interest on investments	14,928	14,291
- insignia sales	486	351
- rent	<u>10,337</u>	<u>9,568</u>
	<u>25,751</u>	<u>24,210</u>
	<u>198,897</u>	<u>197,100</u>
<u>EXPENDITURE</u>		
Publications (Schedule B)	96,646	106,083
Office salaries and employee benefits	35,398	30,416
Postage and shipping expense	5,305	5,635
General and office expense	4,157	3,631
Stationery, printing and supplies	57	-
Life membership allotment to Centres	2,860	3,657
General assembly and travel expense	6,245	6,612
Legal and accounting	2,950	1,325
Insignia, medals and awards	824	1,885
Telephone	1,227	935
Insurance	897	967
Library expense	616	867
Office equipment purchases	1,000	6,066
Bad debts	132	468
Building expenses	<u>5,050</u>	<u>5,813</u>
	<u>163,364</u>	<u>174,360</u>
<u>EXCESS OF REVENUE OVER EXPENDITURES</u>	<u>\$ 35,533</u>	<u>\$ 22,740</u>

*C. J. Tomkham & Associates*

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA  
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA  
NOTES TO FINANCIAL STATEMENTS  
DECEMBER 31, 1987

NOTE 1 ACCOUNTING POLICIES

The financial statements of the Society have been prepared in accordance with accounting policies generally followed by similar non-commercial organizations. The significant accounting policies observed in the preparation of these statements are summarized below.

(a) Membership fees:

Members' fees are credited to income for the related membership year. Accordingly, fees received at the end of the year for the ensuing year are included in deferred revenue. Life membership fees are credited to deferred revenue when received. Five percent of the life membership fund is transferred annually to the general account.

(b) Publications:

Subscriptions to the R.A.S.C. Journal are credited to income for the subscription period.

(c) Investments:

Investments are stated at cost. Investment income is recorded on the accrual basis.

(d) Special purpose funds:

The special funds of the Society are classified in accordance with the objectives specified by the donors or in accordance with directives issued by Council. The income of the various funds is recorded on the accrual basis.

(e) Fixed assets:

The office furniture, equipment and the library of the Society are carried in the accounts at a nominal value of \$1. Any new acquisitions are included in expenditure for the year.

*C. J. Tinkham & Associates*

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA  
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA

SCHEDULE A

UNAPPROPRIATED LIFE MEMBERSHIP FEES  
FOR THE YEAR ENDED DECEMBER 31, 1987

	<u>1987</u>	<u>1986</u>
BALANCE, January 1	\$ 34,581	\$ 26,913
<u>Add</u> : Life membership fees received in the year	800	9,488
	35,381	36,401
<u>Deduct</u> : Appropriation to general account	1,794	1,820
BALANCE, December 31	\$ 33,587	\$ 34,581

SCHEDULE B  
PUBLICATION COSTS

R.A.S.C. Journal

Printing of journal	\$ 33,773	\$ 45,162
Printing of National Newsletter	11,182	11,441
Editorial assistance	1,000	1,000
Distribution costs	10,502	14,574
Reprints	2,482	1,242
	58,939	73,419

Observer's Handbook

Printing	29,786	29,835
Distribution costs	5,792	1,663
Advertising	2,129	1,166
	37,707	32,664
	\$ 96,646	\$ 106,083

*C. J. Timkham & Associates*

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA  
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA  
 SCHEDULE C  
COMPOSITION OF SPECIAL PURPOSE FUNDS  
AS AT DECEMBER 31, 1987

	<u>RUTH NORTHCOTT FUND</u>	<u>ENDOWMENT FUND</u>	<u>TOTAL</u>
Cash	\$ 4,602	\$ -	\$ 4,602
Term deposits	14,000	14,000	28,000
Securities	4,000	-	4,000
Guaranteed Investment Certificate	-	91,600	91,600
Accrued interest	<u>313</u>	<u>-</u>	<u>313</u>
	<u>\$ 22,915</u>	<u>\$ 105,600</u>	<u>\$ 128,515</u>

*C. J. Tinkham & Associates*

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**THE ROYAL ASTRONOMICAL SOCIETY OF CANADA**


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**NATIONAL OFFICERS AND COUNCIL FOR 1988**  
**CONSEIL ET ADMINISTRATEURS NATIONAUX**


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*President* – Mrs. Mary Grey, B.Sc., (C.E.), Ottawa  
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*Recorder* – Leo Enright, B.A., Kingston  
*Librarian* – Brian Beattie, B.A., 136 Dupont Street, Toronto, M5R 1V2  
*Editor of Journal* – Alan H. Batten, D.Sc., Ph.D., F.R.S.C., Victoria  
*Editor of Observer's Handbook* – Roy L. Bishop, Ph.D., Halifax  
*Editor of National Newsletter* – Ian McGregor, B.Sc., B.Ed., Toronto  
*Executive Secretary* – Miss Rosemary Freeman, 136 Dupont Street, Toronto, M5R 1V2  
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Kingston: H. Van Asperen	St. John's: R. Dodge	T. Quigley
Kit-Waterloo: P. Bigelow	Sarnia: J. Thompson	R. Attwood
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Montreal: S. Marshall	St. John's: R. Dodge	Victoria: M. Enock
Centre d.Astro.	Sarnia: J. Thompson	Windsor: H. Lee
Montreal: J.P. Urbain	Saskatoon: J. Young	Winnipeg: J. Haines

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**CENTRE SECRETARIES/SECRETAIRES DES CENTRES FOR 1988**


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CALGARY:	D. Johnson, 1131-10th Street, S.E. Calgary, T2G 3E3
EDMONTON:	J. Savard, #1, 10737-116th Street, Edmonton, T5H 3M3
HALIFAX:	P. Duval, 5415 Victoria Road, #509, Halifax, B3H 4K5
HAMILTON:	E. Golding, 94 East 41st Street, Hamilton, L8T 2Z7
KINGSTON:	E. Adams, RR #3, Harrowsmith, K0H 1V0
KIT-WATERLOO:	J. Doupe, RR #1, Ariss, N0B 1B0
LONDON:	G. Carscallen, 67-50 Fiddler's Green Rd, London, N6H 4T4
CENTRE D'ASTRONOMIE:	Ms. D. Carpentier, 11 Pierre-Ricard, N-D-I Perrot, J7V 5V6
MONTREAL:	Mrs. E. R. Pride, 2283 Canora Road, Montreal, H3P 2K4
NIAGARA:	W. Jutting, 138 South Drive, St. Catharines, L2R 4W2
OTTAWA:	D. MacLeod, 3 Beaver Ridge, Nepean, K2E 6C6
QUEBEC:	M. Yvon Labadie, 101, rue St-Paul, #2, Quebec, G1K 3V8
ST. JOHN'S:	D.M. Bourgeois, 36 Second Street, Mt. Pearl, A1N 1Y5
SARNIA:	J. Thompson, 34 Maplestone Cres., Sarnia, N7S 4X2
SASKATOON:	Ms. L. Wilcox, 2527 Clarence Ave., S., Saskatoon, S7J 1M3
TORONTO:	G. Nason, 5 Abbotsford Road, North York, M2N 2P6
VANCOUVER:	Mrs. S. Baker, 2063 W. 61st Avenue, Vancouver, V6P 2C6
VICTORIA:	Mrs. A. Newton, RR #1, 801 Stanehill Place, Victoria, V8X 3W9
WINDSOR:	C. Joady Ulrich, 243 Watson Ave., #4, Windsor, N8S 3R8
WINNIPEG:	Mrs. M. Rutkowski, P.O. Box 1918, Winnipeg, R3C 3R2



